What is claimed is:

1. A cathode ray tube apparatus comprising:

a cathode ray tube that includes a glass bulb formed from a panel and a funnel connected together and an electron gun housed within the glass bulb, and is operable to emit an electron beam from the electron gun toward a phosphor screen formed on an inner surface of the panel;

a deflection yoke including a horizontal deflection coil and a vertical deflection coil, and operable to scan the electron beam horizontally and vertically over the phosphor screen;

a velocity modulation coil arranged outside the cathode ray tube, and operable to modulate a velocity at which the electron beam is scanned horizontally; and

a magnetic member arranged to surround an outer circumference of the cathode ray tube with the velocity modulation coil positioned therebetween, so as to cover a position corresponding to a space between a first electrode and a second electrode of the electron gun that are aligned in an axial direction.

2. The cathode ray tube apparatus according to Claim 1, wherein

the magnetic member has a looped shape and is inserted over the cathode ray tube.

3. The cathode ray tube apparatus according to Claim 1, wherein

the first and second electrodes generate a main lens for

converging the electron beam onto the phosphor screen.

4. The cathode ray tube apparatus according to Claim 1, wherein the velocity modulation coil is spaced apart from the horizontal deflection coil in the axial direction, so as to avoid occurrence of ringing in an image formed on the phosphor screen caused by interference between magnetic fields generated by the velocity modulation coil and by the horizontal deflection coil.

5. The cathode ray tube apparatus according to Claim 2, wherein the magnetic member is made of sintered Ni-Zn ferrite.

6. The cathode ray tube apparatus according to Claim 2, wherein the magnetic member is made of resin mixed with Ni-Zn ferrite magnetic powder.